

AMENDMENTS TO THE CLAIMS

11. (Currently amended) A modulator circuit, comprising:
a negative impedance amplifier operable for reflecting and amplifying a signal applied to
the amplifier; and
switching means for switching the ~~impedance~~ amplifier between two reflecting states
having impedances in the two reflecting states selected such that a phase of a reflected and
amplified signal switches by substantially 180°.

12. (Previously presented) The modulator circuit according to Claim 11, in which the
impedances in the two reflecting states are selected such that a reflection gain of the amplifier in
the two reflecting states is substantially the same and such that the reflected and amplified signal
is a binary phase shift keyed signal.

13. (Previously presented) The modulator circuit according to Claim 11, in which the
impedances in the two reflecting states are selected such that a reflection gain of the amplifier in
the two reflecting states is different, and wherein the impedances are selected such the reflected
and amplified signal is a substantially single sideband signal.

14. (Currently amended) The modulator circuit according to Claim 11, in which the
negative impedance amplifier comprises a transistor[[,]] and a biasing means for biasing the
transistor such as to act as the negative impedance amplifier.

15. (Previously presented) The modulator circuit according to Claim 14, in which the
switching means switches the biasing of the transistor to switch the transistor between the two
reflecting states.

16. (Currently amended) The modulator circuit according to Claim 11, [[and]] further
comprising an antenna for receiving and converting radiation to the signal applied to the
amplifier, and for radiating the reflected and amplified signal.

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17. (Previously presented) The modulator circuit according to Claim 14, in which the transistor comprises a bipolar transistor.

18. (Previously presented) The modulator circuit according to Claim 14, in which the transistor comprises a field effect transistor.

19. (Currently amended) A de-modulator circuit for de-modulating a binary phase shift keyed signal, comprising:

a modulator circuit including a negative impedance amplifier operable for reflecting and amplifying a signal applied to the amplifier; and

switching means for switching the ~~impedance~~ amplifier between two reflecting states having impedances in the two reflecting states selected such that a phase of a reflected and amplified signal switches by substantially 180°.

20. (Currently amended) A transponder tag, comprising:

a modulator circuit including a negative impedance amplifier operable for reflecting and amplifying a signal applied to the amplifier; and

switching means for switching the ~~impedance~~ amplifier between two reflecting states having impedances in the two reflecting states selected such that a phase of a reflected and amplified signal switches by substantially 180°.

21. (New) A transponder tag, comprising:

a negative impedance amplifier configured to reflect a received signal; and

a switchable biasing circuit configured to bias the amplifier in a first state wherein the amplifier reflects a first signal having a first phase, the biasing circuit further configured to bias the amplifier in a second state wherein the amplifier reflects a second signal having a second phase that differs substantially from the first phase.

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22. (New) The transponder tag according to Claim 21, wherein the negative impedance amplifier includes a transistor that is biased by the switchable biasing circuit.

23. (New) The transponder tag according to Claim 22, wherein the switchable biasing circuit is configured to modify a current passing through the transistor.

24. (New) The transponder tag according to Claim 23, wherein the switchable biasing circuit is configured to switch the current passing through the transistor between two different currents.

25. (New) The transponder tag according to Claim 24, wherein the two different currents are selected based on a desired phase difference of the first and second signals.

26. (New) The transponder tag according to Claim 24, wherein the two different currents are selected based on a desired phase of the first and second signals.

27. (New) The transponder tag according to Claim 23, wherein the switchable biasing circuit includes a current source.

28. (New) The transponder tag according to Claim 21, further comprising a control circuit configured to output a control signal that causes the switchable biasing circuit to switch the amplifier between the first and second states.

29. (New) A method, comprising:

providing a negative impedance amplifier configured to reflect a received signal;

biasing the amplifier to operate in a first state wherein the amplifier reflects a first signal having a first phase; and

switching the biasing of the amplifier to operate in a second state wherein the amplifier reflects a second signal having a second phase that differs substantially from the first phase.

30. (New) The method according to Claim 29, wherein biasing of the amplifier includes modifying a current passing through the amplifier.

31. (New) The method according to Claim 30, wherein the current passing through the amplifier is modified based on a desired phase difference of the first and second signals.

32. (New) The method according to Claim 30, wherein the current passing through the amplifier is modified based on a desired phase of the first and second signals.

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